

## PROJECT DESCRIPTION

## GENERAL

THIS PORTION OF THE PROJECT INVOLVES THE INSTALLATION OF A NEW TRAFFIC CONTROL SIGNAL AND STREET LIGHTING AT MD 228 AND BEALLE HILL ROAD IN PRINCE GEORGES COUNTY. MD 228 IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

## INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA THREE PHASE, FULL-TRAFFIC-ACTUATED MODE, WITH MD 228 THROUGH MOVEMENTS OPERATING CONCURRENTLY AND THE BEALLE HILL ROAD APPROACH OPERATING ALONE. AN EXCLUSIVE-PERMISSIVE LEFT TURN PHASE WILL BE PROVIDED FOR EASTBOUND MD 228. OPTICOM LOW PRIORITY BUS PRE-EMPTION WILL BE PROVIDED TO EXTEND PHASE 2 AND 6 GREEN WHEN ACTUATED.

HARDWARE INTERCONNECT WILL BE PROVIDED BETWEEN THIS INTERSECTION AND MD 228 AND BENNSVILLE ROAD INTERSECTION.

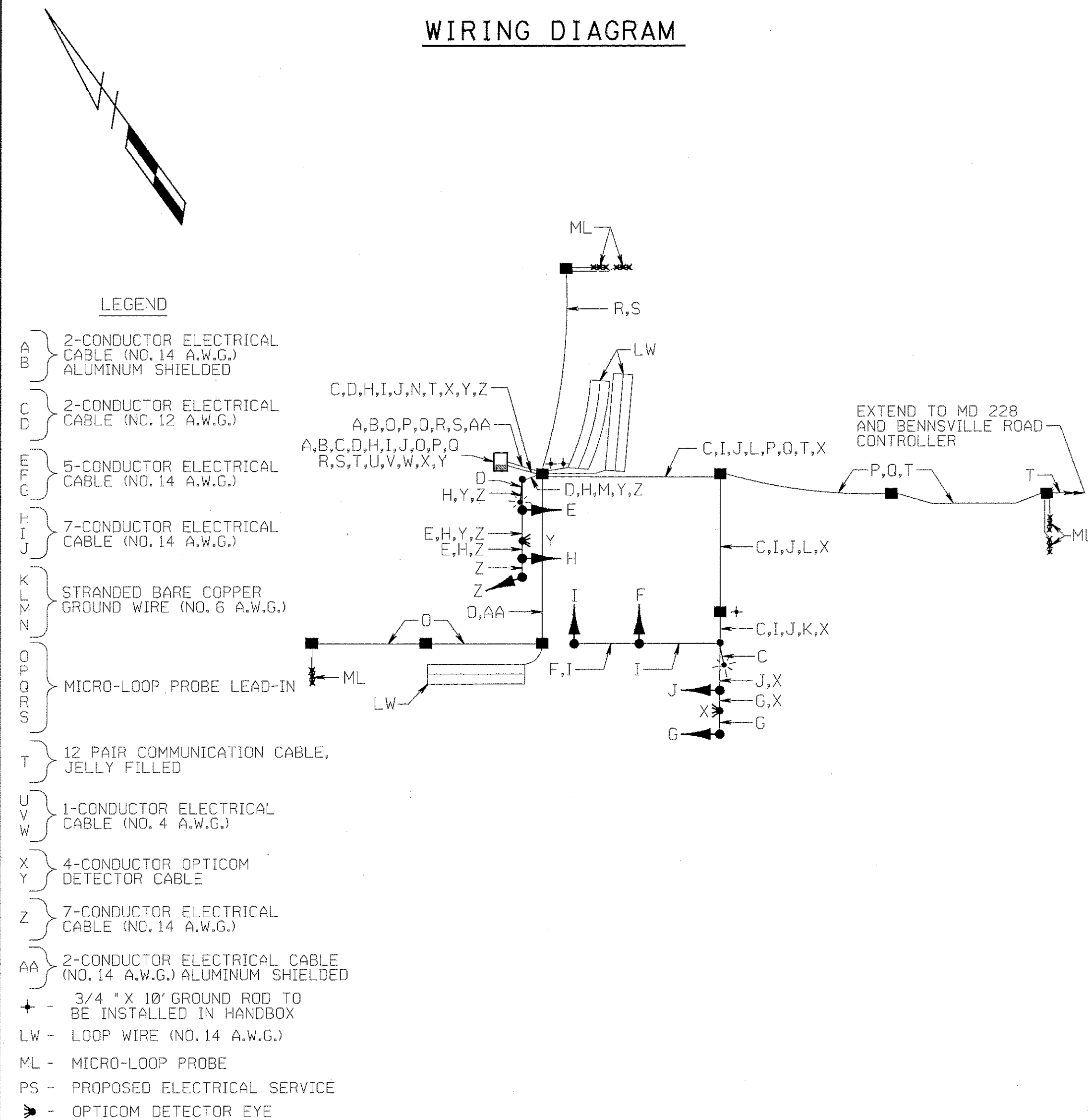
## CONTROLLED REQUIREMENTS

INSTALL A FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER WITH FOUR (4) TWO-CHANNEL, TIME-DELAY-OUTPUT LOOP DETECTOR AMPLIFIERS, INTERSECTION MONITOR WITH BATTERY BACK-UP FOR PHONE DROP, TELEMETRY MODULE, ISOLATION BOARD, SPECIAL RELAY, OPTICOM CARD RACK (NO. 560), OPTICOM DISCRIMINATOR MODULE (NO. 562), AND "D" PANEL AND HARNESS TO BE HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET.

## SPECIAL NOTE

UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA AT (410)787-7631 TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER WITH THE NEAREST STREET ADDRESS, ZIP CODE AND PHONE NUMBER.

## WIRING DIAGRAM



## EQUIPMENT LIST "A"

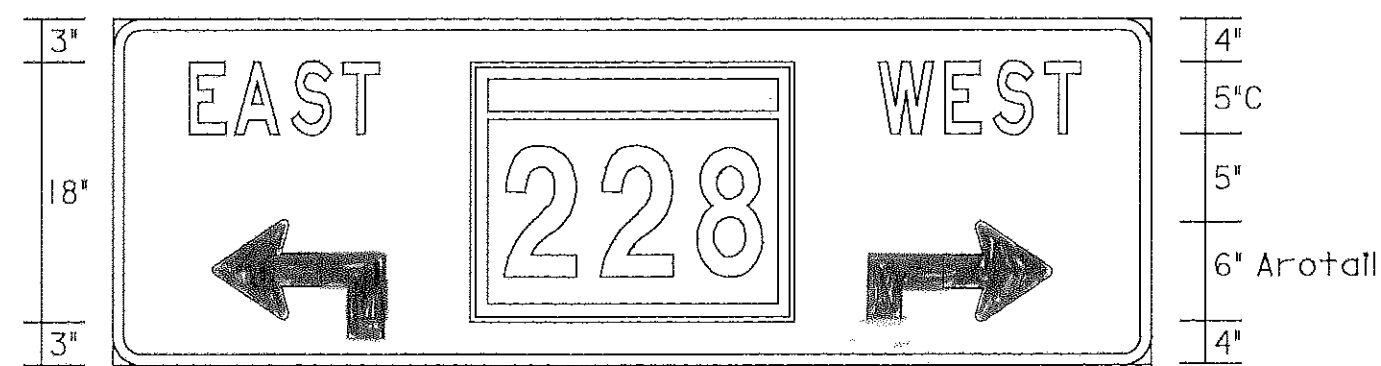
## A. EQUIPMENT TO BE SUPPLIED BY SHA

| CATEGORY CODE NO. | QUANTITY | DESCRIPTION  |
|-------------------|----------|--|
| 960022            | 6 EACH   | 12 IN., ONE WAY, THREE SECTION (R,Y,G) SIGNAL HEAD-MAST ARM MOUNT  |
| 960028            | 1 EACH   | 12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) SIGNAL HEAD-MAST ARM MOUNT   |
| 963007            | 4 EACH   | TWO CHANNEL LOOP DETECTOR AMPLIFIER (DELAY OUTPUT)   |
| 971017            | 1 EACH   | EIGHT PHASE, FULL-TRAFFIC-ACTUATED, SOLID STATE DIGITAL CONTROLLER WITH INTERSECTION MONITOR AND BATTERY BACK-UP FOR PHONE DROP, TELEMETRY MODULE, ISOLATION BOARD, SPECIAL RELAY, OPTICOM CARD RACK (NO. 560), OPTICOM DISCRIMINATOR MODULE (NO. 562), AND "D" PANEL AND HARNESS HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET |
| 973023            | 80 S.F.  | SHEET ALUMINUM SIGNS<br>- 1 EACH D3-2 SIGN (VARIABLE X 16 IN.) DUAL FACED MAST ARM MOUNT<br>- 1 EACH "MD 228, EAST-WEST" SIGN (72 IN. X 24 IN.) MAST ARM MOUNT<br>- 2 EACH W3-3 SIGN (48 IN. X 48 IN.) WITH NEW PANEL (30 IN. X 30 IN.) AND FLAGS GROUND MOUNT<br>- 1 EACH R10-12 SIGN (36 IN. X 42 IN.) MAST ARM MOUNT          |
| 900000            | 5 EACH   | MICROLOOP PROBE SET WITH 1000 FT. LEAD-IN.   |
| 900000            | 2 EACH   | OPTICOM DETECTOR EYE (NO. 511)   |
| 900000            | 1 EACH   | 8 IN./12 IN. ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) SIGNAL HEAD-MAST ARM MOUNT  |

## PHASE CHART

|                    | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
|--------------------|------|------|------|------|------|------|------|
|                    |      |      |      |      |      |      |      |
| PHASE 1 + 6        | G    | G    | R    | R    | G    | R    | R    |
| 1 + 6 CHANGE       | G    | G    | R    | R    | G    | R    | R    |
| PHASE 2 + 6        | G    | G    | G    | G    | G    | R    | R    |
| 2 + 6 CHANGE       | Y    | Y    | Y    | Y    | Y    | R    | R    |
| PHASE 4            | R    | R    | R    | R    | R    | G    | G    |
| 4 CHANGE           | R    | R    | R    | R    | R    | Y    | Y    |
| FLASHING OPERATION | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R |

## SIGN LAYOUT



| WIDTH | HEIGHT | COLOR LEG. | BKGD | BORDER WIDTH | RADIUS | ARROW   | SHIELD |
|-------|--------|------------|------|--------------|--------|---------|--------|
| 6'-0" | 2'-0"  | W          | G    | 3/4"         | 2"     | AROTAIL | MI-6A  |

**WR&A**  
Whitman, Reardon and Associates  
ENGINEERS AND PLANNERS  
2315 Saint Paul Street  
Baltimore, Maryland 21218  
(410) 235-3450

## EQUIPMENT LIST "B"

## B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

| CATEGORY CODE NO. | QUANTITY | DESCRIPTION  |
|-------------------|----------|--|
| 230030            | 3 C.Y.   | TEST PIT EXCAVATION  |
| 585445            | 130 L.F. | 24 IN. WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE                               |
| 801004            | 12 C.Y.  | FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION                                   |
| 801104            | 72 L.F.  | FURNISH AND INSTALL SIGN SUPPORTS 4 IN. X 4 IN.                                      |
| 802501            | 210 L.F. | FURNISH AND INSTALL NO. 6 A.W.G. STRANDED BARE COPPER GROUND WIRE                    |
| 805105            | 140 L.F. | FURNISH AND INSTALL 2 IN. SCHEDULE 80 RIGID PVC CONDUIT-BORED                        |
| 805118            | 100 L.F. | FURNISH AND INSTALL 4 IN. SCHEDULE 80 RIGID PVC CONDUIT-BORED                        |
| 805125            | 530 L.F. | FURNISH AND INSTALL 2 IN. SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED                     |
| 805140            | 140 L.F. | FURNISH AND INSTALL 4 IN. SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED                     |
| 805160            | 50 L.F.  | FURNISH AND INSTALL 1 IN. EQUIPMENT-TIGHT NON-METALLIC CONDUIT FOR DETECTOR SLEEVE   |
| 807205            | 1 EACH   | FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT                               |
| 810010            | 45 L.F.  | FURNISH AND INSTALL ELECTRICAL CABLE 1-CONDUCTOR NO. 4 A.W.G. THHN/THWN              |
| 811011            | 9 EACH   | FURNISH AND INSTALL ELECTRICAL HANDHOLE  |
| 813014            | 46 S.F.  | INSTALL GROUND MOUNTED SIGN  |
| 813015            | 34 S.F.  | INSTALL OVERHEAD SIGN  |
| 822002            | 580 L.F. | FURNISH AND INSTALL 12-PAIR COMMUNICATION CABLE, JELLY FILLED (UNDERGROUND)          |
| 822500            | 1 EACH   | AS-BUILT FOR TRAFFIC SIGNAL  |
| 837001            | 3 EACH   | FURNISH AND INSTALL GROUND ROD-3/4 IN. DIAMETER X 10 FT. LENGTH                      |
| 860022            | 6 EACH   | INSTALL 12 IN., ONE-WAY, THREE-SECTION (R,Y,G) SIGNAL HEAD-MAST ARM MOUNT            |
| 860028            | 1 EACH   | INSTALL 12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) SIGNAL HEAD-MAST ARM MOUNT       |
| 861104            | 130 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR (ALUMINUM SHIELDED)                 |
| 861107            | 80 L.F.  | FURNISH AND INSTALL ELECTRICAL CABLE-5 CONDUCTOR (NO. 14 A.W.G.)                     |
| 861108            | 720 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE-7 CONDUCTOR (NO. 14 A.W.G.)                     |
| 861116            | 330 L.F. | FURNISH AND INSTALL ELECTRICAL CABLE-2 CONDUCTOR (NO. 12 A.W.G.)                     |
| 862101            | 980 L.F. | FURNISH AND INSTALL LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 A.W.G.)             |
| 862102            | 450 L.F. | FURNISH AND INSTALL SAWCUT FOR SIGNAL (LOOP DETECTOR)                                |
| 866104            | 2 EACH   | FURNISH AND INSTALL 20 FT. LIGHTING ARM ON SIGNAL STRUCTURE                          |
| 871117            | 1 EACH   | INSTALL EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET-BASE MOUNT               |
| 800000            | 2 EACH   | FURNISH AND INSTALL 250 WATT HIGH PRESSURE SODIUM VAPOR LUMINAIRE WITH PHOTO-CELL    |
| 800000            | 5 EACH   | INSTALL MICROLOOP PROBE SET  |
| 800000            | 1 EACH   | FURNISH AND INSTALL 27 FT. STEEL POLE WITH A 60 FT. MAST ARM                         |
| 800000            | 1 EACH   | FURNISH AND INSTALL 27 FT. STEEL POLE WITH TWIN 50 FT./64 FT. MAST ARMS              |
| 800000            | 340 L.F. | FURNISH AND INSTALL 4-CONDUCTOR OPTICOM DETECTOR CABLE (NO. 138)                     |
| 800000            | 2 EACH   | INSTALL OPTICOM DETECTOR EYE   |
| 800000            | 1 EACH   | INSTALL 8 IN./12 IN., ONE-WAY, FIVE-SECTION (R,Y,YA,G,GA) SIGNAL HEAD-MAST ARM MOUNT |

SIGNAL NO.



MARYLAND DOT - STATE HIGHWAY ADMINISTRATION  
Office of Traffic & Safety  
TRAFFIC ENGINEERING DESIGN DIVISION  
GENERAL INFORMATION SHEET  
MD 228 AND BEALLE HILL RD.

|               |                        |                        |                 |           |
|---------------|------------------------|------------------------|-----------------|-----------|
| DATE: 10-6-95 | DRAWN BY: S. BLOSS     | F.A.P. NO.             | PLAN SHEET NO.: | SHEET NO. |
| SCALE: NONE   | DESIGNED BY: T. ZAYDEL | S.H.A. NO.             | TS-3554G1       | OF        |
| APPROVED BY:  | CHECKED BY: T. HANNAN  | COUNTY: PRINCE GEORGES |                 |           |